

INTRODUCTION

The educational process must encompass a wide variety of learning environments to give students the experiences necessary to develop skills for making intelligent and effective environmental decisions. Field trips to a variety of natural environments are desirable, but the availability of an accessible outdoor area on or near the school grounds greatly increases the frequency and ease with which such experiences can be incorporated into the instructional program.

Developing an Environmental Study Area (ESA) can be a major project involving an entire school and community over several years. It can also be much smaller in scale--simply identifying a site's existing resources and utilizing existing instructional materials. Students can perform outdoor activities on a ball field, blacktop and along a fence line. Teachers are encouraged to use the outdoors for learning at every appropriate opportunity, just as they would use the library, a laboratory or a gymnasium.

This lesson is designed to allow students to plan an ESA. The primary goal is for students to develop an understanding that they can positively impact their environment and community. If done in its entirety, the activities will occur over a period of several weeks or months and incorporate a variety of activities from all disciplines.

After completing this lesson, the teacher can carry the project forward with the actual development and use of the ESA.

THE ACTIVITIES

TIME REQUIRED

- | | |
|--|---|
| I. Introduction to Environmental Study Areas | Introduction and Planning - 1 hour
Field trip - at least 1/2 day
Wrap-up, Reporting - 2 hours |
| II. Inventory of the Potential ESA Site | Preparation - 1 hour
Investigation - at least 3 hours
Wrap-up, Reporting - at least 2 hours |
| III. Potential Uses and Users of the ESA | Introduction - 1 to several hours
Collecting the data - 1 to several hours
Wrap-up, Reporting, Summarizing - at least 2 hours |
| IV. Planning the ESA | 2 1/2 hours over several days |



COMBINING THE ACTIVITIES

Activities in this section are designed to be used as a unit. They are displayed singly for convenience and clarity. While it is possible to pick and choose between them, the activities should be used in the order given and in their entirety. However, the activities can be completed over several days or class periods depending upon your schedule. Activities can be modified or abbreviated and still maintain their effectiveness.

CURRICULUM RELATIONSHIPS

Social Studies

1. Investigate zoning regulations and the processes for obtaining government and school district approval for an ESA.
2. Invite a land-use planner to speak to the class about how planners work to identify and manage natural areas.
3. Investigate the role of volunteers in meeting community needs.

Science

1. Do outdoor learning activities on the ESA site.
2. Prepare a science field trip for students in primary grades.
3. Use the science text to identify problems that could be investigated in the ESA.
4. Collect environmental information at the ESA for a government agency such as the Department of Fish and Wildlife, Forest Service, or Bureau of Land Management.
5. Prepare a nature trail guide for the ESA.

Mathematics

1. Develop a "math path" with activities for all grade levels.

Language Arts

1. Make presentations to community organizations such as the Rotary Club or school board.
2. Write a proposal to the school district asking for funds to help build the ESA.

Creative Arts

1. Prepare a video tape presentation about the ESA.
2. Make signs for the ESA.
3. Design a logo which identifies the ESA.



INTRODUCTION TO ENVIRONMENTAL STUDY AREAS

CONCEPT	System, Interaction
PRINCIPLE	An Environmental Study Area (ESA) is a valuable instructional resource where students can learn through direct involvement. This activity prepares students to plan an ESA by exposing them to existing facilities in the community.
OBJECTIVE	<ul style="list-style-type: none">• The student will be able to list things that can be learned at an ESA.• The student will be able to describe characteristics of an ESA that help learning to take place.• The student will be able to explain the importance of ESAs.
PREPARATION	Visit a variety of ESAs and make arrangements for field trips to visit one or more of them. Students will be able to do this activity better if they have had several outdoor learning experiences beforehand. Students will also use activities from the Environment lesson plan.
MATERIALS NEEDED	<ul style="list-style-type: none">• Blackboard or easel board/pad or butcher paper.• Marking pens -- various colors.• Masking tape. <p>To conduct their investigations, students may wish to use such things as tape recorders, Polaroid cameras, video cameras, clip boards, sketching paper, etc.</p>
PROCESSES USED	<ul style="list-style-type: none">• Observe• Infer• Define Operationally• Interpret Data• Built Environment lesson plan
TIME	Introduction and Planning - 1 hour Field Trip - at least 1/2 day Wrap-up, Reporting - 2 hours



DOING THE ACTIVITY (indoors, then outdoors)

A. Set Stage:

Most of your studies are done in a classroom, but you also learn in the gymnasium, science laboratory and library. The outdoors can also be a great place for learning. We are going to plan for the development of an outdoor classroom called an Environmental Study Area or ESA. To get us started with our planning we are going to look at some nearby ESAs on a field trip.

To make the most of our time, we will need to plan carefully beforehand. We want to collect information that will be useful to us later.

B. Procedure:

1. Introduction and Planning - Classroom Chart
Do Steps III and IV from Investigating the Built Environment.
Step III: Identify and Focus on Land Use Patterns and Interrelationships
Step IV: Identify and Analyze the Topic for Your Investigation
NOTE: These activities will require minor modifications to meet the needs of this lesson.
NOTE: When planning their investigations, make sure the students include use and management aspects of the ESA: user groups, ownership, programs offered, etc., in addition to a physical inventory of the site and its development.
2. Conduct the investigation -- Field Trip.
Do Step V from Investigating the Built Environment.
Step V: Conducting the Investigation.

At the conclusion of the investigation have the students generate a list of things that could be studied at the ESA they have visited.

C. Retrieve Data:

1. Prepare and report on the investigation - Classroom.
2. Do Step VI from Investigating the Built Environment.
Step VI: Prepare and report on the investigation.

CLOSURE

Ask the class:

1. What are some things you learned about ESAs?
2. How are the ESAs you looked at similar? How are they different?
3. What were things you liked and disliked about the ESAs you visited?
4. When we plan our ESA, what are some things you would like to include in the plan?

TRANSITION

Now that you have studied some ESAs, we can begin to plan one for our school.



INVENTORY OF THE POTENTIAL ESA SITE

CONCEPT	Organism, System, Qualification, Model
PRINCIPLE	To plan an ESA, you must first understand the site's current state. In this activity, students will inventory and map the potential ESA site.
OBJECTIVE	<ul style="list-style-type: none">• The student will be able to conduct an inventory of a natural area.• The student will be able to draw a map of a natural area.• The student will be able to report his findings to others.
PREPARATION	<p>Complete Step I: Introduction to ESAs. Identify a potential ESA site on the school grounds or in the community. Obtain approval and support from the administration to proceed with the project.</p> <p>Have the students complete other lessons in the <u>Investigating Your Environment</u> series, particularly the <u>Measuring Your Environment</u> lesson.</p>
MATERIALS NEEDED	<ul style="list-style-type: none">• Map of ESA.• Cardboard plane table or instant mapper from <u>Measuring Your Environment</u> lesson.• Marking pens - various colors. <p>The students may wish to use such things as tape recorders, cameras, video cameras, clipboards, sketching paper, etc.</p>
PROCESSES USED	<ul style="list-style-type: none">• Observe• Measure• Use numbers• Infer• Classify• Question• Interpret Data
TIME	Preparation - 1 hour Investigation - at least 3 hours Wrap-up, Reporting - at least 2 hours



DOING THE ACTIVITY

A. Set Stage:

To plan for development and use of an ESA, we need to know about the area's current state. We will do this by collecting lots of information and displaying it in a way that is understandable.

B. Procedure:

1. Introduction and Planning - Classroom.

Prepare a map of the site - Classroom, ESA.

Do Step ____ : Construct and Use the Instant Mapper or from the Measuring Your Environment: Construct and Use a Cardboard Plane Table.

NOTE: It may be possible to obtain a map of the ESA site from your school district, city, county, Soil Conservation District or other agency.

2. Do Step IV from Investigating the Built Environment.

Step IV: Identify and Analyze the Topic for Your Investigation.

Make sure the students include natural communities, topography, and man-made features in addition to lists of trees and animals.

3. Conduct the Investigation - ESA.

Do Step V from Investigating the Built Environment.

Step V: Conducting the Investigation.

C. Retrieve Data:

1. Prepare and report on the investigation - Classroom.

2. Do Step VI from Investigating the Built Environment.

Step VI: Prepare and Report on the Investigation.

The class may wish to follow-up with its preparation of a large report, display, slides or a video tape which can be used for presentations to other individuals or groups.

CLOSURE

Ask the class:

1. What are some things that are special or unique about this area?
2. Do you think this area would make a good ESA? Why
3. What kinds of things could be studied here?
4. What kinds of improvements would you recommend for this area?

TRANSITION

There may be other people interested in our ESA. To have a really good ESA it must have a variety of resources that can be used by many different people.



POTENTIAL USES AND USERS OF THE ESA.

CONCEPT	Interaction, System
PRINCIPLE	To develop a plan for an ESA, you must first target and know your audience--who will use the facility, how will they use it etc. It is also important to promote the ESA so others will help with its development.
OBJECTIVE	<ul style="list-style-type: none">• The student will be able to collect information through surveys and/or interviews.• The student will be able to interpret the data collected.• The student will be able to report the findings to others.
PREPARATION	Complete Steps I and II. Contact other teachers and members of the community to get their support for the ESA project.
MATERIALS NEEDED	<ul style="list-style-type: none">• Blackboard or easel board/pad.• Marking pens - various colors.
PROCESSES USED	<ul style="list-style-type: none">• Infer• Classify• Design Experiments• Interpret Data• Communicate
TIME	Introduction - 1 to several hours Collecting the Data - 1 to several hours Wrap-up, Reporting, Summarizing - at least 2 hours



DOING THE ACTIVITY

A. Set Stage:

Now that we have a good description of our ESA, we are ready to share our information with others and get their ideas and their support.

B. Procedure:

1. Who else might be interested in the ESA? Why would they be interested? (List on blackboard).
2. What are some things we would like to tell them about the ESA? (List on blackboard).
3. What information would we like to collect from these people or groups? (List on blackboard). How could we collect this information?
4. Working in small groups, select one individual or group you would like to collect information from. Prepare a short presentation about the ESA and develop a process for collecting and recording the information.

NOTE: The students may decide to use questionnaires, conduct interviews, publish a booklet, or use another process. If doing presentations or interviews, they may wish to practice with their own class before actually collecting the information.

5. Have the students collect the information.

C. Retrieve Data:

1. Have each group prepare a presentation about the information they collected. The presentation should include how they collected, recorded, and interpreted the data as well as the information itself. The presentation should include a visual display of the information so that it will remain available for the students to use later.
2. Have the groups make their presentations to the class.

CLOSURE

Discuss with the class and record on the blackboard or chart paper:

1. Which individuals or groups seemed most enthusiastic about the ESA? What help could they give in planning and building the ESA?
2. What kinds of things would people like to do and study at the ESA?
3. Overall, who is (are) the most important user(s) of the ESA? What kinds of activities will be most important to them?

TRANSITION

We now have all the information we need to make a plan for our ESA.



PLANNING THE ESA

CONCEPT	Interaction, System, Model
PRINCIPLE	In a successful ESA, the users' needs match the site's resources. In this activity, the students use the information they have collected and develop a plan for the ESA.
OBJECTIVE	<ul style="list-style-type: none">• The student will be able to use data to prepare alternative solutions to a problem.• The student will be able to develop criteria for evaluating alternatives.• The student will be able to select a solution.
PREPARATION	Complete Steps I, II and III.
MATERIALS NEEDED	<ul style="list-style-type: none">• Easel board/paper or butcher paper.• 11" x 17" Maps of the ESA site showing natural features.• Yellow tracing paper.• Marking pens - various colors.
PROCESSES USED	<ul style="list-style-type: none">• Measure• Use numbers• Infer• Classify• Hypothesize• Communicate
TIME	2 1/2 hours over several days



DOING THE ACTIVITY

A. Set Stage:

The next and final part of our project is to use the information we have collected about the ESA site and its potential users to make a plan for constructing improvements to the site.

B. Procedure:

1. First, we have to decide what makes a good plan. What do you think are important elements to have in a good plan? (List on blackboard.)
2. Discuss the list. Some items may be grouped together. By consensus or some other method select a manageable list of criteria against which the plans can be evaluated.
3. Your next task is to develop a plan for the ESA site to meet the needs of the user groups. Divide the class into groups of 4 or 5 and pass out maps of the site and tracing paper to each group. Assure them that more tracing paper is available. NOTE: If tracing paper is not available, multiple copies of the map could be used. Place the tracing paper over the map and sketch out your ideas. Make several plans with different solutions to the problem. You might consider these to be rough drafts, just like when you write a theme. When planners face a tough problem, they might try dozens of possible solutions before they are satisfied.
4. When you have several rough plans drawn, discuss them with your group. Identify each plan's good and bad points and how well the plans meet the criteria developed earlier.
5. Now you can make a final plan which incorporates all the best ideas you have developed.
6. Make an enlarged map to share with the class and prepare a presentation explaining your plan.
7. Have each group make a presentation explaining their plan. Include an opportunity for questions and discussion.
8. Following the presentations, hang the plans on the bulletin board or wall. By each plan place a large sheet of paper divided in half. Label one half, "good features", and the other, "weak ideas/problems". Have the students review the plans and write down their comments. This could be done over several days.
9. Select representatives of each small group to be members of the final planning team. Have them use the group plans, student comments and the evaluation criteria to develop a final plan. When the plan is finished, there should be an opportunity for a critique by the class followed by revisions, if necessary, before the class gives its final approval.



CLOSURE

This has been a complicated project. It has involved many activities over a long period of time. Review the steps with the students. Have the students reflect on their efforts.

1. What did you like best about the project?
2. What went well? What could have gone better?
3. What skills did you develop and use?
4. What would you do differently next time?

Inevitably, the students will want to know about the next phase: Getting the ESA Built and Used. This is an opportunity to make a plan for this if one has not been developed previously. The plan could include:

- a. Phases of development, priorities, and timelines.
- b. Resources from the community, both material and human.
- c. Work parties for students, parents, and the community.
- d. Field trips for other grade levels.
- e. Development of guides and instructional materials.

